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TRIANGULATION IN FEMINIST ECONOMIC RESEARCH

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THE BEST OF TWO WORLDS: BETWEEN-METHOD TRIANGULATION IN FEMINIST ECONOMICS RESEARCH¹

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THE BEST OF TWO WORLDS: BETWEEN-METHOD TRIANGULATION IN FEMINIST ECONOMICS RESEARCH

Abstract

Assumptions applied in Orthodox Economic methods are criticised for being an inadequate depiction of reality. This is particularly the case from the perspective of Feminist Economics. Gender biases are reflected in the quantitative data sources and methods commonly applied for economic research. These include male biases in statistical data, a focus on outcomes rather than processes as well as the neglect of reproductive work and its interaction with market work. To overcome these problems, this paper introduces between-method triangulation, i.e. the combination of quantitative and qualitative methods of data generation and analysis, as an innovative and more realistic methodology to conduct gendered economic analysis.

It draws on the authors' recent empirical work on the Indonesian and Mauritian labour markets where between-method triangulation was employed. The approach is shown to be able to enhance empirical economic analysis by mutually validating results. Furthermore, the approach is shown to remove gender biases in economic analysis by analysing conflicting evidence and by complementing quantitative with qualitative findings in light of feminist economics theory.

1. The quantitative and qualitative paradigm: Two worlds apart?

Orthodox Economics⁴ commonly relies on quantitative techniques of data generation and analysis. They are rooted in a positivist epistemological paradigm⁵. According to that view, only observable phenomena are considered knowledge because an 'objective reality' cannot be discovered (Nachane, 2003; Bryman, 1988).

Orthodox economists have generally rejected the use of qualitative methods, such as various interview techniques, and participant observation (Hariss, 2002, White, 2002). Based on positivism, they hold that methods should only be used, which conform to the principles of objectivity, observability, and precision (Downward and Mearman, 2005). It is assumed that quantitative data conform to these principles while qualitative methods are perceived as being less precise and as not allowing for prediction (Saludadez and Garcia, 2001). They are also assumed to strongly involve the researcher with the research subject and that way to weaken objectivity. Another reason for the rejection of the qualitative methodological paradigm is the fact that qualitative samples are commonly not representative. In the end, Orthodox Economics is almost defined by the quantitative methods it uses (Dow, 2000), reflected in the quantitative orientation of economic journals (Lawson, 2003; Bitsch, 2001; Riach and Rich, 1998).

Yet, quantitative methods, in particular econometrics, have been criticised on ontological⁶, epistemological, and theoretical grounds⁷.

Many of the recent critiques of the positivist approach in economics and the resulting quantitative orientation of applied economics research have been inspired by the Critical Realist perspective. At the ontological level, Critical Realism presupposes that objects exist independent of the investigation. Furthermore, objective reality is seen as being more than observed data because deeper structures or ‘emergent properties’, such as power relations cannot directly be observed (Akram-Lodhi, 2003). The data applied in Orthodox Economics are thus seen as being one stratum of reality only.

Critical Realism describes economic reality as an open system, that is, with the subject matter evolving such that not all relevant variables and relationships are knowable (Dow, 2000). Such openness makes event regularities, as assumed in Orthodox Economics laws, unlikely. Any closure such as the common *ceteribus paribus* assumption will compromise open systems by ignoring the transitivity of social objects (Mearman, 2003; Olsen, 1999).

Consequently, Critical Realists argue that econometrics alone is likely to fail explaining and predicting economic reality as it assumes both the internal conditions of the entity under investigation and external economic and non-economic environment to remain stable. Also, Critical Realists amongst others dispute that statistical methods are able to identify causality, which in their view can only be established by a process of theoretical introspection (Nachane, 2003).

As will be shown in section 2, Feminist Economics adds to criticism of the ontological foundations, epistemology, and issues typically focused on in Orthodox Economics. This paper takes the criticism of Orthodox Economics methodology, particularly from a feminist perspective, as a starting point and suggests between-method triangulation as a strategy to address these concerns. Between-method triangulation is thought to remove biases and enhance the validity of economic analysis. It draws on the authors’ recent empirical work on Indonesian and Mauritian labour markets where between-method triangulation was employed.

The paper is structured as follows. The next section presents the feminist criticism of Orthodox Economics and its associated methodology. Orthodox Economics is criticised for its unrealistic ontology based on the ‘rational economic man’ and the resulting modelling based on individual choice. Theories focus on – male-dominated - market-based activities and thus ignore the analysis of – female-typed - provisioning in a broader sense. The preferred quantitative methods in Orthodox Economics render the influential role of structural factors such as power and social norms invisible, which has led some feminist economists to use qualitative or mixed methods. Section three presents case studies from Mauritius and Indonesia where gendered labour markets were analysed using between-method triangulation. They show that between-method triangulation permits the development of more complete models of economic reality as well as the validation of research results. Section four draws on the two case studies and argues that between-method triangulation also addresses the outlined

⁴ In this article, Orthodox Economics is used as a shorthand for the dominant neoclassical form of economics.

⁵ Epistemology refers to systematic ways of gaining knowledge.

⁶ Ontology refers to the science of existence.

⁷ For a critique focussing on mainstream development economics, see Hariss (2002), White (2002).

concerns from Feminist Economics. Section five summarises the findings and provides an outlook for future use of the approach in Feminist Economics.

2. *'Rational economic man's' toolbox is rusty: Feminist criticism of orthodox economic methodology*

Feminist Economics interprets the world as open, interrelated, and flexible and therefore shares the Critical Realist criticism of closure in Orthodox Economics (Nelson, 2003). Moreover, it argues that the ontological assumptions of Orthodox Economics are unrealistic and biased in favour of men's interest as they tend to legitimise a conventional gender division of work (Robeyns, 2000). This is particularly the case for the behavioural model of 'rational economic man', or *homo oeconomicus*, who is assumed to be an autonomous individual, making self-interested choices according to stable and exogenous preferences and subject to external constraints. These ontological assumptions are reflected in the way Orthodox Economics gains knowledge about economic reality, namely through the development of formalised models to be tested econometrically. From these, general conclusions and policy recommendations are drawn. Feminist Economics in contrast has placed central emphasis on provisioning for individual and collective well-being as an objective for economics rather than the stress on rational choices between alternatives (Benería, 2002). Human beings are embedded in social relations and endowed with emotions and concern for others as well as self-interested (Nelson, 1995). Sen (1990) disputes the assumption of exogenous preferences and points out that some learned preferences, for example the allocation of food within the household, are not contributing to the individual's well-being, but are sustaining gender inequalities in access to resources.

Traditionally, male-dominated activities related to the market have taken centre stage as subject matter in economics. Based on its focus on provisioning in a broader sense rather than market-based activities alone, Feminist Economics stresses the importance of the reproductive economy for human welfare. 'Reproductive work' refers to activities for the care and development of people, performed mostly by women under conditions of unpaid labour. 'Productive activities', in contrast, refer to income generating activities, generally linked to the market (Çağatay, 1998). By including the reproductive economy in economic analysis, Feminist Economics has added a new dimension to the criticism of Orthodox Economics. It questions the role of the market in providing optimal solutions for everyone (Benería, 2002). As women are perceived as the main persons responsible for the reproductive economy independent of their entry in the labour market, the consequence is that they shoulder the double burden of responsibilities at home and at work. Whereas the negative effects on the micro-level of their health and well-being have been well-studied (MacDonald et al., 2005; Floro, 1995), little research has been conducted on the macro-level of the labour force they are reproducing through the caring economy (Walters, 1995).

In the quantitative data commonly gathered for and applied in Orthodox Economic analysis, the reproductive economy remains invisible. As stated above, Orthodox Economic theory largely ignores the role of structural factors, such as institutions or power. Harding (1995, quoted in Robeyns, 2000) points out that orthodox methodology does not have the tools to detect underlying norms. This is a crucial

gap given the emphasis in Feminist Economics on perceiving the economy as a gendered structure (Elson, 1999a). Elson (1999b), for example, sees the labour market as a 'gendered institution', that is being implicitly and explicitly structured around a gender division of work based in social norms. Similar to the Critical Realist critique, Feminist Economics stresses that the focus on quantitative data analysis leads to a superficial picture if these underlying structures, in particular patriarchy, are ignored (Nelson, 1995).

Moreover, the suggested gender-neutrality in the commonly applied data is questioned. For example, Greenwood (1999) highlights that national labour statistics focus only on 'core' employment and unemployment situations, in other words, workers in full-time, regular, and formal employment and persons who are looking for such jobs. These types of employment are male-dominated whereas women are concentrated in part-time, irregular, and informal work. This way, a gender bias in the statistical depiction of the labour market is imported.

Within Feminist Economics, some authors have advocated and/or applied qualitative methods in order to overcome the shortcomings of quantitative methods of data generation and analysis. Kabeer (2000), exploring labour market decisions of women workers in London and Dhaka, used in-depth interviews to uncover the complexity of the factors shaping labour market choices. In fact, Pujol (1997) argues that the analysis of complex mechanisms such as understandings and perceptions are best uncovered through the use of in-depth interviews. Furthermore, Van Staveren (1997) emphasises that qualitative techniques, such as focus group discussions (FGDs), are able to transcend the dichotomy between theory and empirics through a participatory approach to hypotheses development. Criticising econometric methods as too indirect to draw conclusions about economic behaviour, Bergmann (1989, quoted in Riach and Rich, 1998) advocates participant observation of economic activities as the subject matter of economics is closer to anthropology than to mathematics. Finally, Esim (1997) makes the argument for the use of qualitative methods as she argues that it reduces power hierarchies in the research process.

Only few authors, however, have advocated a combined application of qualitative and quantitative methods as an alternative to Orthodox Economics methodology. Robeyns (2000) sees methodological pluralism in Feminist Economics as rooted in its theoretical diversity and openness. Given its commitment to make all knowledge visible, methods should be applied, which also access knowledge that hardly lends itself for quantification. For example, looking at the determinants of education and labour force participation among Palestinian men and women, Olmsted (1997) shows how complementing quantitative with qualitative data enabled her to derive more insight into the different processes leading to apparent similar labour force participation outcomes. Olsen et al. (2003) see methodological mixes as a way of linking market outcomes, gauged from quantitative surveys, with the gender norms generating them. The latter can best be identified through qualitative techniques.

Berik (1997) emphasises three reasons why feminist economists should enrich economic analysis by making use of qualitative methods. Firstly, quantitative surveys often show the abovementioned male biases. They may be uncovered and qualified by the use of qualitative data. Secondly, qualitative methods may allow for more flexibility in the conceptualisation and measurement of economic processes, rather than outcomes alone. Thirdly, the expansion of economic analysis to fields such as reproductive work and power relations, which have so far been of marginal concern to

the discipline, may be helped by the use of qualitative methods because of their greater flexibility.

The advocated methodological mix is commonly termed 'triangulation'. It relates to the collection of evidence for the study of the same empirical unit using several vantage points (Olsen, 1999). 'Methods triangulation' is one of the four types of triangulation Denzin (1989) identifies. It refers to the combination of a variety of methods for data generation and analysis. Two types of it can be distinguished, namely 'within-method triangulation' on the one hand, and 'between-method triangulation', on the other hand. The latter entails the use of dissimilar methods of research, such as quantitative and qualitative types of data generation and analysis. Kelle (2001) identifies three rationales for the application of between-method triangulation. On the one hand, it is employed to mutually validate research findings. This may also imply the invalidation of incorrect results. On the other hand, it is employed to produce a more complete picture of the reality. Finally, a third reason - or a stricter interpretation of the second - is that investigation from different angles is perceived as a necessary prerequisite for explanation.

The following section provides empirical material from two labour market studies conducted in Mauritius and Indonesia. They are seen as case studies to assess the potential of between-method triangulation in Feminist Economics research.

3. A glance of two worlds: Case studies from Mauritius and Indonesia

3.1. Mauritius⁸

The study in Mauritius looked at the impact of export-oriented policies on women's work burden, their health and on the reproductive economy. Export-oriented policies in Mauritius were started in the 1970s with the implementation of an Export Processing Zone (EPZ) leading to a sudden and rapid feminisation of the labour force. Yet, rigidity in gender roles meant that as women entered the labour market they remained responsible for the reproductive economy. It was therefore suspected that their work burden had greatly increased and that it affected their health. In addition, the impact on women's health would also come from the fact that women were crowded in low-wage, low-labour standards sectors. The increase in women's work burden was also thought to have an impact on the reproductive economy as women lacked the time and energy to care for their children and their reproductive tasks as a whole (Elson, 1991). As a result, the study had two broad objectives, firstly, to measure women's work burden in terms of hours of productive and reproductive work; and secondly, to assess the impact of the work burden on women's health and on the reproductive economy.

To explore these two aspects, a quantitative and a qualitative survey were undertaken in 2002. The use of between-method triangulation in the context of the Mauritian study was motivated by gaps in data generation on the one hand and gaps in data analysis on the other hand.

In data generation, existing statistical data on wages and hours of work were not disaggregated by gender. Additionally, data on women's reproductive activities were

⁸ If not mentioned otherwise, this sub-section is based on Blin (2004).

not available, in other words no data was available on working hours in the household. Also, quantitative data on reproductive work were considered less apt to explore quality aspects of the reproductive economy such as care and attention given to children and intensity of reproductive work. Finally, the available literature was insufficient to develop a questionnaire that would be adapted to the social and cultural context of Mauritius.

In data analysis, it was questioned whether quantitative techniques would reveal the mechanism behind the relationship between family and work characteristics and their impact on work burden. Therefore, a qualitative and a quantitative survey was undertaken, addressing the mentioned shortcomings. Data on the reproductive economy was gathered in both the quantitative and qualitative investigation. Data on wages and hours of work disaggregated by sex was gathered through the quantitative survey, while the qualitative methods helped revealing the causal mechanisms and quality aspects of the reproductive economy. Also, FGDs were conducted in order to support appropriate questionnaire development.

The quantitative data was drawn from a proportionate stratified random sample collected in Mauritius in February-April 2002 on 200 women working in 35 textile and garment firms in the EPZ. The quantitative questionnaire consisted of four main sections. Section one looked at general information on the respondent. Section two covered questions related to hours of productive and reproductive work during weekdays and weekends, as well as the types of reproductive activities undertaken within the household. Section three covered questions on the participation in house chores from other members of the household, as well as the availability of labor-saving equipment within the home. Section four consisted of questions on women's perception of their working conditions and health status as a result of their entry into the labor market. On top of evaluating women's productive and reproductive hours of work and women's health status, three linear equations were developed to test the determinants of women's work burden and a fourth equation to examine the determinants of women's health status (see tables 1 & 2 in appendix for results).

The in depth interviews were undertaken on women working in three export sectors, the EPZ and the offshore and information technology (IT) sectors⁹. The objective of comparing three different sectors was to understand how different work contexts could impact women and their productive and reproductive work burden. The qualitative interviews explored issues such as empowerment as a result of women's entry into the labor market, the level of their work burden, and how women felt they could cope with their caring activities as a result of their entry into the labor market. In particular, the research explores whether women felt the care of their children had been affected by their entry into the labor market. The qualitative research also looked at whether women undertook multitasking at home and whether the intensity of their work had increased with productive work. It looked at coping behaviors and how family and work circumstances influenced women's work burden. Finally, it explored women's needs and women's expectations from the government and society as a whole in terms of their gender positioning in Mauritius. Forty one women were interviewed, 16 from the EPZ, 16 from the offshore sector and 9 from the export IT

⁹ The offshore sector consists of financial and other business activities and the export IT sector consists mostly of software-related and web design activities (Blin, 2004).

sector. The selection process was undertaken so as to get as diversified a sample as possible (quotas were taken along with company size, type of employment, marital status, family structure, number of children and age of children).

Following Kelle's (2001) suggestion that validation and complementarity are the potential benefits of method mixes, the use of between method triangulation on the case of Mauritius will now be assessed.

The results of the quantitative survey on the main determinants of women's work burden were number of children, help received in the house and labour saving equipment (see table 2 in appendix). However there were strong limitations to the model applied (e.g no theoretical base, small sample size, partially explained model) and therefore it was uncertain how reliable our results were. Nevertheless, after undertaking the qualitative analysis, we found that the same variables affected reproductive work. Here triangulation allowed validating findings in the quantitative analysis.

Data was collected on hours of productive and hours of reproductive work of women working in the EPZ. It was found that women as a result of their entry into the labour market had to shoulder a high work burden. Indeed, the survey found that women worked on average more than a hundred hours of productive and reproductive work per week. A qualitative survey was then undertaken to explore how women's work burden affected their reproductive work. Here, women explained how they felt that their work burden was preventing them from giving their children the care and attention they needed and often pushed them to neglect their reproductive chores.

Had the research been limited to the quantitative analysis it would have only been possible to analyse quantifiable aspects of the reproductive economy. The qualitative analysis allowed not only to invalidate gender biases in data collection and analysis but also to investigate causal processes regarding the impact on the reproductive economy in particular in terms of the care and attention given to children.

In the study, the analysis of FGDs was used in order to help constructing the questionnaire for the quantitative survey. During the discussions, the participants identified how women perceived help coming from other members of the household. The results of the FGDs allowed to review the measure of help in the quantitative analysis and to adapt the weight for those helping only a little when building a help index. This way, qualitative methods complemented existing information to build a more reliable quantitative survey.

As mentioned above, the quantitative results found that women working in the EPZ worked on average more than hundred weekly hours of productive and reproductive work. The qualitative survey additionally suggested that there was evidence of systematic multitasking in the reproductive work, as well as women having to intensify their work in the household since their entry into the labour market. Therefore, using only a quantitative analysis would have underestimated women's work burden.

Triangulation allowed to complement the quantitative results by providing a better understanding of causal processes. In the quantitative survey, it was found that the

main determinants of hours of reproductive work were the number of children under 18 living in the house, the number and intensity of help received by other members of the household and the type and quantity of labour saving equipment available to the household. The qualitative survey allowed exploring how the interaction of these intervening variables actually improved or worsened women's work burden. For example, it was found that some families on higher income levels, allowing them to purchase more labour saving equipment, were still found to have comparatively high work burdens. The reason seems to be that these richer families did not receive help from family members. Here are two quotes of two women with similar hours of work in the office and both with two children but different income and family realities. The quotes are extracts of their comments on their work burden at home:

This respondent with a medium income and living in a nuclear family finished the description of her typical day by saying:

"...sometimes I'm on the verge of breakdown, I'm the only one taking care of the children." (In depth interviews with female EPZ workers, May 2002)

On the other hand, this respondent who earned a relatively lower income but lived in an extended family pointed out:

"...it's my mom who does everything, but before when I lived separately it was difficult. I lived far from work, so I had a long trip home and my husband used to do nothing and was often out of the house." (In depth interviews with female EPZ workers, May-June 2002)

These findings suggest that similar outcomes on work burden result from a diversity of processes. In fact, factors such as culture, socio-economic context and the nature of the interaction between the different intervening variables affect the way women feel about their work burden.

The method mixes also generated conflicting evidence. For example, in the quantitative survey women were asked whether they were satisfied with their work in the factory. A large majority (76%) stated that they were. However, in the qualitative survey as issues of empowerment were being explored, women were asked a question on job satisfaction and whether they would continue working if they had more choice. Here, a majority of women said they were not treated well at work and not as well as men. One respondent commented:

"For men salaries are higher, and we [women] have to bear the screams of the manager." (In depth interviews with female EPZ workers, May-June 2002)

If they had more choice, they would stop working to take care of their family or they would choose another job. For example one respondent said she would prefer to stay at home if she had more choice adding:

"I would be more fulfilled, to see my children grow, I didn't see them doing their first steps. Maybe I would be the happiest woman!" (In depth interviews with female EPZ workers, May 2002)

These answers contradict the quantitative results. The explanation for the difference can be one or several of the following: One reason could be that the quantitative interview was undertaken in the workplace where women felt pressure to answer that they were happy with their job. The qualitative survey on the other hand was undertaken in their home where they felt free of such pressure. Also, quantitative surveys are characterised by use of closed questions. They can exclude answers closer to the respondent's experience and that way lead to unreliable answers. This is also suggested by Kelle's (2001) own findings from a study in post-unification Germany where only detailed qualitative interviews corrected 'ideologic' quantitative data.

Another reason could be social conditioning. Given the closed nature of the question in the quantitative survey, women generally said they were satisfied because they needed the money and they did not expect to be treated well anyway. We could relate this to Agarwal's argument of women being constrained in overtly expressing their self-interest (Agarwal, 1997). However, in the qualitative survey, the discussion was open and unstructured and women were offered the hypothetical possibility of more choice. Therefore, with the option of an alternative, women put their situation in a perspective and made the judgement that they were not satisfied with their job. Hence, without the qualitative survey we would have not been able to capture the complexities of women's feelings and expectations regarding working conditions and job satisfaction and possibly biased quantitative information would not have been identified.

3.2 Indonesia¹⁰

The Indonesian case study assessed the impact of globalisation on gendered labour markets in rural Indonesia. Foreign direct investment (FDI) was selected as an aspect of globalisation, which is a special concern for policy-makers in Indonesia. In particular, after the Asian Financial Crisis, it was hoped that transnational corporations' (TNCs') activities created jobs in the troubled economy. The investigation looked at the effects of FDI on the gender composition of the workforce, female and male workers' employment conditions, and gender wage inequality. Assuming interactions between the labour market and domestic spheres, the research investigated remunerated productive work and non-remunerated reproductive work.

In order to answer the research questions, data on the gender composition of the workforce in the estate, mining, manufacturing, and hotel sector, their FDI-intensity, on female and male involvement in reproductive work, on indicators of working conditions such as occupational safety and health, unionisation, and labour turnover, as well as on gender-specific wages in the respective sectors were required. The Indonesian Central Bureau of Statistics (Badan Pusat Statistik, BPS) provided three establishment and one household datasets that included a large number of the variables of interest. The establishment surveys cover three of the four sectors of interest, i.e., the manufacturing (1996 Annual Manufacturing Survey), estate (1999 Large Estates Inventory), and hotel (2000 Hotel and Other Accommodation Inventory) sub-sectors. They provide employment-related information in gender-disaggregated format as well as data on FDI intensity and other firm characteristics. Two similar surveys for mining, targeting oil & gas and non-oil & gas mining, are conducted annually. The Indonesian National Socio-Economic Survey (Survei Sosial Ekonomi Nasional, SUSENAS) is an annually conducted household survey. The

¹⁰ If not mentioned otherwise, this sub-section is based on Siegmann (2003).

dataset chosen originates from 2001. Of this dataset, observations related to wage-earners were analysed as it was utilised to assess the impact of FDI on gender-related wage differentials.

However, there were important gaps in these official data sources. The various indicators of gendered employment conditions and reproductive work were not covered by Indonesian official statistics and previous research. No data on the sex of the large group of temporary workers was given in the 1999 Large Estates Inventory. Information on the largely female unpaid workers were completely lacking in the same dataset. The mining surveys did not disaggregate labour market data according to sex.

These biases and gaps in available data sources provided an important reason to apply the research strategy of between-method triangulation for this study. The use of qualitative methods was assumed to generate additional data to allow for an assessment of the impact of FDI on these areas.

The complementary qualitative data were collected in 2002 through FGDs in the mentioned four sectors of rural Indonesia. Questions regarding gendered employment conditions and reproductive work, for example, were part of the interview items for the FGDs. Also, different types of contractual status were treated as indicators for the quality of working conditions. It should be noted that statements made during the FGDs were considered relevant if they remained undisputed during the FGD¹¹. Apart from these quantitative and qualitative sources, available literature was analysed.

Similar to the previous case study, Kelle's (2001) suggestions about the value added of between-method triangulation in social sciences have largely been supported throughout this empirical research.

In many cases, the findings obtained by applying a mix of qualitative and quantitative methods supported each other and, thus, provided a mutual validation of the results. Findings regarding the extent of female-dominated temporary work in large estates provide a good example of the increased robustness through mixed methods. Sairin (1996) mentions that about one third of the plantation workers in North Sumatra had temporary status in 1984. According to the 1999 Large Estates Inventory, approximately half of all field workers under supervisory level are temporary plantation workers. This is consistent with the FGDs' participants' observation that in recent years the share of temporary workers has risen. Similarly, Heyzer (1989) finds that during the 1980s, plantations in Sumatra were able to reduce labour costs for some operations by a reduction in permanent and an increase in casual workers. The conclusion drawn from the combined analysis of literature sources and statistical data was thus supported by the FGDs' analysis.

Data generated in the FGDs actually invalidated biased statistical data, like the underestimation of female work in quantitative survey data. The results derived from the study of the plantation sector again provide an example. One result of the FGDs was that typically wives of plantation workers are working as unpaid labourers on the estate. It is their task to help their husbands accomplishing daily harvesting targets, for example, they collect loose fruits of the oil palm bunches. Although they work

¹¹ This approach has obvious shortcomings due to Indonesian social norms sanctioning disagreement with people, which are on a higher position in, for example, age-related hierarchies.

similar hours as their male family members and other permanent or temporary workers, they neither enter a contract relationship with the plantation company or a subcontracting firm nor do they receive remuneration for their work. Both female and male participants of the FGDs refer to this work in terms of mere support:

“Moderator: Is your wife also working in the plantation. - S.: No. She's only helping me.” (FGD conducted with male participants, July 17, 2002)

The 1999 Large Estates Inventory does not mention these predominantly female unpaid workers although they play a crucial role in plantation work. This brings to the fore how the perception of women as secondary income earners, and thus mere ‘helpers’ of male family members, leads to a redefinition of female work as ‘support’. This goes beyond Ilahi’s (2000) finding that the time women spend on reproductive tasks or market activities with irregular schedules are often not classified as work. The fact that it is women who perform certain economic activities here is found to change these activities’ status from ‘work’ to ‘help’. Biased statistical coverage of work is a result. The application of a method mix helped to uncover this bias. The solution in this case was to rely entirely on the qualitative information regarding this unpaid segment of the labour market in estates. This however, did not fix but only highlighted the bias in the quantitative analysis. Had a structured survey been designed after the FGDs instead of employing existing statistical data, a related item could have been constructed.

Where qualitative and quantitative results did not run parallel, two different relations between them could be identified. On the one hand, they complemented each other. The inquiry into wage determination and factors explaining the gender wage differential in the estate sector provides an illustrative example. The combination of wage data generated during the FGDs with information on the regional minimum wage from the literature revealed that most plantation workers earned below the monthly regional minimum wage of Indonesian Rupees (IDR) 464,000 (Table 3 in the Appendix). Furthermore, the information gap on wage rates for permanent workers from the 1999 Large Estates Inventory’s could be reduced with data generated in the FGDs. From the combined data, conclusions could be drawn regarding the influence of foreign ownership on the gender wage differential. It was found that in foreign estates, the larger share of female permanent workers and a smaller percentage of casual labourers combined with the higher wages for permanent labourers means a smaller gender wage gap in foreign as compared to domestic firms.

Another example is taken from the analysis of gender wage differentials. While the quantitative analysis showed the part of individual endowments and FDI in affecting gender wage differentials (Table 4 in the appendix), the qualitative data revealed that indirect mechanisms such as labour turnover and schooling of male and female workers also played a role. Foreign firm ownership, with its associated higher requirements regarding formal schooling and labour market attachment, thus plays an indirect role in widening the gender wage gap. With Brannen (1992) one can state that, here, the combination of qualitative and quantitative approaches provides a solution to ‘the duality of structure’ (Giddens, 1976), i.e. it fills the gap between macro-structures such as the role of FDI and causal processes at the micro-level. This is due to the respective strengths of quantitative and qualitative data. Difference in sample size and sample selection are the main differences between qualitative and quantitative inquiries. Quantitative methods typically rely on large samples selected randomly, which allows for generalisation. They are thus capable to reveal

distributions and structures. Qualitative inquiry, in contrast aims at obtaining information-rich cases via the selection of a relatively small number of cases (Patton, 1990). In such smaller samples, it is easier to focus on human intent as the main driver of social action.

In a number of cases, the data were complementary in the sense, that results from the FGDs filled existing gaps in the quantitative data. As in the Mauritian labour market study, no information on reproductive work was available. Additionally, the role of structural factors such as social norms remained inaccessible in official statistics. They were brought to the fore in the qualitative survey undertaken. For example, regarding the quality of employment, participants in FGDs repeatedly mentioned informal sector employment as being preferable to formal work due to the greater sovereignty over time use. The same issue revealed considerable interactions with gender norms. Whereas men favoured informal work, as this would for example allow them to smoke during work-time, for female workers, analogous to the Mauritian case study, it meant an opportunity to combine market work with their reproductive obligations.

Also, similar to the Mauritian case study, some of the results were found to be contradictory. Contradictions in the FGDs within the various contributions of one single participant also shed light on the transitivity of social subjects, which the 'snapshot'-like questionnaire-based survey is less capable to identify. The shift in the rationalisation of a female worker in a leather factory, I., of the gender division of tasks along the heavy versus light work criterion provides an illustrative example. She moves from repeating the norm, namely that the physically light work is female-typed, to a reflection of inconsistencies between the norm and the reality she experiences:

"Moderator: (...) So, now we'll talk about the working conditions. For men and women, is there any difference in working conditions? – N.: It's different. – Moderator: What's the difference? – N.: Usually, men have a harder job than woman, such as packing, etc. – Moderator: What about other companies? – I.: Quite the same, heavy tasks are for male workers, light jobs are for female workers, there are also male workers for the light tasks. But for the really heavy tasks, women are not strong enough."
(FGD conducted with female participants, June 17, 2002)

later:

"Moderator: (...) What do you think for whom is it more comfortable to work at the factory, for men or for women? – S.: I think, it is more comfortable for women, their tasks are not as heavy as men's. – N.: I think, it's quite the same. We all feel tired. I think, at Company P., it's more comfortable for women. – S.: Men's tasks are heavier than women's, they have to pack the goods, and the like. Women just operate the machine, that's all. – I.: We also push the trolley. – Moderator: Who, where? – I.: In Company S., women push trolleys filled with leather."
(FGD conducted with female participants, June 17, 2002)

4. Taking out the best of two worlds: Implications for methodology

The two case studies presented in the preceding section have supported Kelle's (2001) suggestion that between-method triangulation has the potential to increase the robustness of research by mutual validation and by complementing knowledge generated by dissimilar techniques. His observations can be further specified. Regarding validation, supportive evidence generated by different techniques may be as important as conflicting facts that help to identify biases and complexities. Similarly, with respect to the complementarity¹² of quantitative and qualitative types of information, one way of matching them to produce a more complete picture of economic reality is to use one type of data to fill gaps in the other source. An alternative is to add causal explanation to the associations of various factors. Here, qualitative and quantitative methods have different strengths. Quantitative data allow easier access to the distribution and association of (quantifiable) variables of interest. Qualitative analysis in contrast can add causal explanation of the identified associations. In addition, qualitative data are more appropriate to explore more complex issues such as social norms and reproductive work.

Herewith, the two case studies exemplify how between-method triangulation can address the Feminist Economics critique of Orthodox Economics at the levels of ontology, theory and – ultimately - methodology.

At the ontological level, the results of the between-method triangulation uncovered the embeddedness of women's labour market choices in social relations and social norms. The centrality of these gender norms in Mauritian and Indonesian labour markets, leading, for example, to a comparative advantage of women workers in low-pay labour-intensive sectors and to preferential recruitment of men in capital-intensive industries, would not have been included in an economic explanation based purely on quantitative analysis. This is in contrast to the individualistic ontology of the *homo oeconomicus*. In the case of Mauritius, the results showed how women's choice of working was a trade-off between earning an income and improving the welfare of their family and the cost it implied for their children in terms of care and attention they received and in terms the impact on women's well-being. In the case of the Indonesian labour market, the female preference for informal sector work mirrored the same concern for the well-being of their children rooted in social norms.

At the epistemological level, the openness of economic reality was underlined by the reported results from Mauritius and Indonesia. The method mix applied allowed respondents to highlight different, conflicting aspects of their perception of reality such as in the assessment of job satisfaction of female factory workers in Mauritius and in statements about the physical dimensions of women's work in Indonesian manufacturing. The case study of Mauritius has highlighted the complex relationship between variables. In particular, it has emphasised how constraints, such as family structure can have different impact on women and the reproductive economy depending on women's socio-economic and cultural context. Similarly, the example taken from the analysis of gender wage differentials in rural Indonesia uncovered indirect causal mechanisms in widening the gender wage gap, such as differences in labour turnover and schooling of female and male workers. These findings address the abovementioned critique of shallowness in Orthodox Economic analysis. Without the complementary qualitative investigation, the decomposition of the gender wage gap

¹² The stronger role of complementarity in the case studies presented may result from the intention in both cases to apply between method triangulation to address data gaps.

would have relied on an incomplete wage equation. This would have led to the opposite conclusion, namely that foreign investment contributes modestly to a closure of the gender wage gap in rural Indonesia. A quantitative analysis alone would have failed to identify how diverse social and cultural contexts meant that Mauritian women's entry into the labour market had different implications for women's wellbeing and the care economy. The role of structural factors, e.g. social norms, and their role in generating labour market outcomes and processes could be identified by complementing quantitative with qualitative analysis. This is in line with Berik's (1997) assessment of method mixes allowing enhanced investigation into economic processes. Additionally, the use of between-method triangulation allows to explore aspects of a relationship that are not easily quantifiable, such as social norms, reproduction, multi-tasking, and working conditions.

At the theoretical level, between-method triangulation in both cases made the role of the reproductive economy visible. In the Indonesian case study, quantitative analysis alone would have had to stop at identifying dissimilar effects of FDI and domestic investment on gendered labour markets. Explaining them by referring to the reproductive constraints women are submitted to would not have been possible. Similarly, in the Mauritian case study a purely quantitative analysis would have underestimated women's reproductive responsibilities since it would have failed to account for their multitasking and the intensity of their reproductive work. The reproductive economy is absent in Mauritian and Indonesian labour markets statistics. If the econometric analyses had had not been complemented by a qualitative study, the analyses of the extent of women's work burden and how it affected the reproductive economy would have carried gender biases, provided only a partial picture, and would have not offered an understanding of the underlying causal processes.

Methodologically, between-method triangulation helped to identify gender biases in economic data as suggested by Berik (1997). For example, the statistical invisibility of female unpaid workers in Indonesia's estate sector and the answers of Mauritian factory workers that conform to the expectations of the work environment and the simplified categories of a questionnaire were qualified by adding qualitative information. Overall, typical features of women's work, namely its often unpaid and more precarious nature and women's conflicting pressures between the need for an income and their reproductive responsibilities would have not been captured, had the Indonesian and Mauritian studies been based on statistical information alone.

5. Summary and outlook

This paper showed that between-method triangulation can be an effective methodological tool to address core concerns of Feminist Economics. In the two labour market studies from Mauritius and Indonesia outlined above, it was shown that between-method triangulation is able to enhance empirical economic analysis by mutually validating results, removing gender biases by identifying conflicting evidence and by complementing information on new issues and factors of concern particularly for Feminist Economics. By enriching economic analysis with the application of qualitative tools, the analysis can be pushed beyond the narrow ontology of 'rational economic man' to one that incorporates connectedness by

identifying for example the role of social norms. Theoretically, the reproductive economy with its complexities and interactions with the market can be accessed more easily through a method mix. As compared to Orthodox Economic methodology, between-method triangulation allows deeper and more robust causal explanation. Overall, Feminist Economics would benefit from the increased application of between-method triangulation.

This would involve more systematic reflection and incorporation of method mixes in research designs. Feminist Economics can learn from the experience of other disciplines in this regard. For example, Mayring (2001) highlights ways of integrating qualitative and quantitative analysis at the level of technology, data, persons involved, and research design. Kanbur (2001) examines the fruitfulness of method mixes for poverty analysis.

Open questions remain. If method mixes are applied to detect gender biases, on the basis of which criteria is decided, which data are more valid? One criterion may be to refer to the dissimilar strengths of quantitative analysis and qualitative information, respectively. As mentioned above, quantitative data have an advantage in providing information about distribution, whereas qualitative analysis is superior in bringing about causality. In case of conflicting results, those sources can be referred to which are superior in the aspect under discussion.

It might also be unclear whether dissimilarly generated types of data refer to the same entity. As long as samples in both data are similar in structure and characteristics, this question is relatively unproblematic. If they are not, one minimum criterion is to consider these differences in sampling in data interpretation.

Despite the questions and the challenges of making systematic and fruitful use of between-method triangulation for Feminist Economics, it might be worthwhile to recall that particularly for research that has a political aim, such as that of increased gender equality, the emancipatory effect of an investigation can actually be enhanced by bringing out dissimilar perspectives.

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Appendix

Table 1. Definitions of variables used in explaining work burden and health status of women

Variable	Definition	Mean	Standard deviation
Wk	Hours of factory work per week	50.92	6.53
Hswk	Hours of reproductive work from Monday to Friday	17.55	7.5
Wehswk	Hours of productive and reproductive work on Saturday and Sunday	25.38	6.48
Health	Health index according to the number of health problems, value from 1 to 6	2.84	2.2
W	Monthly earnings of respondent in Rs.	2924.8	869.35
Y	Numbers of years worked in the factory	8.05	5.94
U	Equals 1, if respondent lives in urban area	0.60	0.49
Cer	Equals 1, if respondent is a quality controller	0.17	0.37
Ny	Number of income earners in the household	1.21	0.86
M	Equals 1, if the respondent is married	0.81	0.39
F	Number of people living in the house	4.2	1.62
C	Number of children under 18 living in the house	0.88	0.99
A	Age of respondent	36.95	10.34
L	Labour saving equipment index according to hours saved per day, value from 0 (no time saved) and 4	1.09	0.59
H	House chore contribution index according to number of helpers and perceived intensity if help, value from 0 (no help) to 12	3.21	2.54
P	Equals 1, if respondents is complained of poor working conditions	0.425	0.49

Source: Blin (2004)

Table 2. Ordinary least-squares regression results for the four models

Variables	Coefficients (t-stat)			
	Wk	Hswk	Wehswk	Health
W	0.0013364 (1.90)***	-	-	-
Y	0.1860473 (2.55)**	0.0378836 (1.99)**	-0.3022299 (-4.19)*	-
U	-2.263669 (-2.49)**	-0.5896404 (-3.12)**	2.108895 (2.38)**	-0.3499068 (-1.41)****
Cer	2.010767 (1.61)****	-	-	0.6090264 (1.94)***
Ny	1.415896 (2.31)**	0.2161997 (1.72)***	-	-
M	-	1.03913 (3.89)*	-	-
F	-0.68263 (-2.18)**	-	-	0.1230742 (1.64)****
C	0.681762 (1.34)****	0.4682824 (5.05)*	1.052248 (2.35)**	-0.2694722 (-2.08)**
O	-	-	-	-
A	-	-	-0.185417 (3.36)*	-
L	-	-0.2212703 (-2.10)**	-0.7774004 (-1.46)****	-
H	-	-0.094285 (-2.44)**	-	-
Wk	-	-	-	0.0866005 (3.83)*
Hswk	-	-	-	0.3869331 (3.16)*
P	-	-	-	1.386484 (4.69)*
Constant	47.08714 (21.06)*	2.590153 (7.99)*	19.61725 (9.32)*	3.208056 (1.78)***
F	4.40*	15.42*	7.93*	31.92*
R-squared	0.1380	0.3276	0.1338	0.4870
Nb of Obs.	200	200	200	200

* $p \leq 0.01$, ** $p \leq 0.05$, *** $p \leq 0.10$, **** $p < 0.20$ (marginally significant)

1- R-squared have low values because typically in cross-section analysis looking at differences in individual behaviour, many of the factors affecting these behaviours cannot be measured (Rubinfeld, 2000), therefore we cannot hope to explain all the variation.

Source: Blin (2004)

Table 3: Examples of wages for plantation field workers in North Sumatra, 2002

Capital source	Type of estate	Worker's sex	Status	Task	Reported wage (IDR)	Monthly wage (IDR)*
foreign	oil palm	male	permanent	harvesting	462,000 (monthly)	462,000
foreign	oil palm	male	temporary	harvesting	18,560 (daily)	445,440
foreign	cocoa	female	permanent	harvesting	460,000 (monthly)	460,000
foreign	..	female	temporary	..	12,900 (half day) 18,000 (daily)	400,000 432,000
domestic	oil palm	male	permanent	harvesting	300,000 (monthly)	300,000
domestic	oil palm	male	temporary	harvesting	265,725 (monthly)	265,725
domestic	oil palm	female	permanent	fertilising/ weeding	285,000 (monthly)	285,000
domestic	cocoa	male	temporary	harvesting	300,000 (monthly)	300,000
..	..	female	temporary	pest control	7,500 (per ha)	..
..	temporary	weeding	8,500 (per ha)	..

Source: Siegmann (2003)

Notes: Empty data cells arise from a lack of information about the employer's capital source, type of the estate, worker's sex, status, or tasks in the FGDs. This is particularly the case if participants reported about a third person's experience.

*If not reported, monthly wages are calculated for reasons of comparability, assuming 24 workdays per month. The calculation is based on a 5.5 days workweek as reported during the FGDs.

Table 4: Oaxaca decomposition of gender wage differentials in rural Indonesia, 2001

	Female wage structure	Male wage structure
	Portion of raw wage differential explained	Portion of raw wage differential explained
	(%)	(%)
Raw gender wage differential ($\ln w_m - \ln w_f = 0.62$)		
FDI	0.23	0.45
Interaction FDI/formal schooling	-1.26	-0.35
<i>FDI variables</i>	<i>-1.03</i>	<i>0.10</i>
Hours worked	20.10	20.49
Formal schooling	14.74	-4.38
Experience	-8.15	-7.32
<i>Human capital variables</i>	<i>26.69</i>	<i>8.79</i>
Total	25.66	8.90

Source: Siegmann (2003)